



## Practice

### 7.2 Polynomial Functions and Their Graphs

Graph each function and approximate any local maxima or minima to the nearest tenth.

1.  $P(x) = x^2 + 3x + 4$

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2.  $P(x) = 6 + x - 3x^2$

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3.  $P(x) = 2x^3 - 2x^2 + 1$

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4.  $P(x) = x^4 + x^3 - 4x^2 - 2x + 2$

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Graph each function. Find any local maxima or minima to the nearest tenth. Find the intervals over which the function is increasing and decreasing.

5.  $P(x) = 4x^3 - 3x^2 + 2, -6 \leq x \leq 6$  \_\_\_\_\_

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6.  $P(x) = 0.3x^4 + x^3 - x, -4 \leq x \leq 4$  \_\_\_\_\_

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7.  $P(x) = x^3 + 1.2x^2 - 2, -5 \leq x \leq 5$  \_\_\_\_\_

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8.  $P(x) = -x^4 + 2.5x^3 - x^2 + 1, -4 \leq x \leq 4$  \_\_\_\_\_

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Describe the end behavior of each function.

9.  $12 - 4.2x^3 + x^2$

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10.  $3.3x^3 - 2x^2 - 5x + 1$

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11.  $5x^3 - 6x^4 + x^2 + 1$

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12.  $1.1x^4 - 2.2x^3 + 3.3x^2 - 4$

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13. Factory sales of passenger cars, in thousands, in the United States are shown in the table below. Find a quartic regression model for the data by using  $x = 0$  for 1990. (Source: Bureau of the Census)

1990	1991	1992	1993	1994	1995
6050	5407	5685	5969	6549	6310

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